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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPLICANT(s):	Lars Dalsgaard		
SERIAL NO.:	09/812,932	ART UNIT:	2665
FILING DATE:	03/20/2001	EXAMINER:	Ryman, Daniel J.
TITLE:	IMPROVED METHOD AND ARRANGEMENT FOR CONTROLLING CELL CHANGE AND A TERMINAL OF A CELLULAR SYSTEM		
ATTORNEY DOCKET NO.:	413-010125-US (PAR)		

Board of Patent Appeals and Interferences
United States Patent and Trademark Office
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APPELLANTS' BRIEF

This is an appeal from the final rejection of claims 1,2,4,7 and 19-32 in the above-identified application. A Notice of Appeal was mailed on September 27, 2005.

I. REAL PARTY IN INTEREST

The real party in interest in this Appeal is:

Nokia Mobile Phones, Ltd.
Keilalahdentie 4
02150 Espoo Finland

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences regarding this application.

III. STATUS OF CLAIMS

Claims 1-15 and 19-32 are pending in the application.

Claims 1,2,4 and 19-32 have been finally rejected.

Claims 5,6 and 8-15 are objected to.

The claims on appeal are 1,2,4,7 and 16-32.

IV. STATUS OF AMENDMENTS

All amendments have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Applicant's invention is directed to a method for controlling a cell change in a service network. (pg. 1, line 1). In one embodiment, a terminal (500, FIG. 5) performs neighbor cell measurements for a cell change. (pg. 1, lines 1-2; pg. 11, lines 11-18).

The network makes a cell change decision based on the measurement results, network load and the terminal's service need. (pg. 1, lines 5-7; pg. 6, lines 28-29; FIG. 4, (41-42)).

The network sends a cell change order (FIG. 4, (43)) to the terminal that instructs the terminal to switch over to a new cell. (pg. 1, lines 7-8; pg. 6, lines 29-30).

If the new serving cell assigned to the cell change order is a cell and the timing information of the new cell is not known to the terminal, the cell change will not take place. (pg. 4, lines 20-23; pg. 5, lines 12-14; pg. 7, lines 2-4; lines 19-21; FIG. 4, (44)).

Rather, the terminal will send a cell change failure message to the base station instead of attempting a cell change. (pg. 4, lines 23-25; pg. 5, lines 24-28; pg. 7, lines 4-7, lines 19-22; FIG. 4, (47)).

In one embodiment the cell change order can include an information element that gives the terminal the right not to perform the cell change if the terminal does not know the timing information of the new cell assigned to it. (pg. 7, lines 29-36; pg. 8, lines 17-19).

A message sent by the terminal to the network indicates the non-execution of the cell change. (pg. 7, lines 14-16, FIG. 4 (47)).

In another aspect, the present invention is directed a terminal. (FIG. 5; (500)) in a cellular radio system. (pg. 11, lines 19-21). The terminal can connect to certain services (GSM, GPRS). (pg. 6, line 20 to pg. 7, line 1). The terminal can receive signaling messages from base stations and perform cell measurements to find a suitable serving cell. (FIG. 5, 501, 502, 511, 512, 513, 530, 504; pg. 12, lines 1-17).

The terminal includes means to determine the timing information of neighbor cells, send a cell change failure message instead of trying a cell change. (pg. 12, lines 6-17).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 1,2,4,7,19-24 and 26-32 are unpatentable over Applicant's Admitted Prior Art ("APA") in view of Tiedemann, Jr. et. al. (U.S. Patent No. 5,940,761) ("Tiedemann") under 35 U.S.C. §103(a).

2. Whether claim 25 is unpatentable over APA in view of Tiedemann and further in view of Anderson et. al. (U.S. Patent No. 6,094,575) ("Anderson") under 35 U.S.C. §103(a).

VII. ARGUMENT

1. Claims 1, 2, 4, 7, 19-24 and 26-32 are not unpatentable over Applicant's Admitted Prior Art ("APA") in view of Tiedemann, Jr. et al. ("Tiedemann") (U.S. Patent No. 5,940,761) under 35 U.S.C. §103(a).

A *prima facie* case of obviousness under 35 U.S.C. §103(a) requires that each and every element of the claimed subject matter be disclosed or suggested by the combination of references. This is not the case.

In Applicant's invention, as recited for example in claim 1, if the timing information of the new cell is <u>not</u> known to the terminal, the cell change does not take place. Rather, the terminal sends a "cell change failure message" <u>instead of attempting</u> a cell change. This is not disclosed or suggested by the combination of APA and Tiedemann.

Tiedemann discloses at least "attempting" a cell change in each of the two embodiments that disclose handoffs in a CDMA system. In the first embodiment, the base station sends a handoff command to the terminal and the terminal makes a cell change attempt immediately by measuring the power levels of nearby base stations (Col. 9, line 58- Col. 9, line 27). If the attempt does not succeed, the terminal returns to the original base station (Col. 9, lines 28-38). Nowhere is it disclosed or suggested in Tiedemann not to attempt a cell change or that "attempting a cell change" might be substituted by a "cell change failure message" as recited in Applicant's claim 1.

The second embodiment in Tiedemann discloses dividing a cell change attempt in two different steps (Col. 9, line 39 - Col. 10, line 37). The base station first sends to a terminal an extended list of base stations (Col. 9, lines 39-42). The terminal then makes neighbour cell measurements with the base stations in the extended list (Col. 9, lines 44-49). The measurement results of the terminal are then transmitted back to the base station (Col. 9, lines 50- 54). The base station uses the measurement results from the terminal to generate a second base station list which is called an Active Set list (Col. 9, lines 60-64). This Active Set list is sent back to the terminal, which then tries to acquire the base stations in the Active Set list. If acquisition of the base stations in the Active Set list is successful, the terminal can make a handoff to one of the base stations in the Active Set list (Col. 9, line 66- Col. 10, line 14). If the handoff is not possible, the terminal returns to the original base station (See Abstract). This kind of failure is possible because the movement of the terminal can cause an effect that attenuates a certain base

station very quickly. As such, in the second embodiment of Tiedemann, where the base station gives an actual cell change command, the options of the terminal are either to make the cell change or return to the original base station. Nowhere is it suggested or disclosed that "attempting a cell change" be replaced by a "cell change failure message" as recited in claim 1 of the present Application.

The first part of Tiedemann's second embodiment relates to "neighbour cell measurements." Neighbour cell measurements are a basic task to be done by the UE (User Equipment) all the time in order to enable mobility. The UE basically monitors neighbour cells according to information received from the current service system/cell. When to measure and what to measure depends heavily on which system the UE is currently camped on. The measurement might be performed constantly with certain time intervals, or they might be triggered due some network defined thresholds. Included in the task of performing measurements is also the task of identifying neighbouring cells. This is e.g. in GSM by synchronizing to the cell and in WCDMA to identify the Primary and Secondary scrampling code. This concept is generally known, and definitions can be found for example, in ETSI specifications 45.008, section 6.6; 25.133, section 4.2.2, section 8; 25.331, section 8.4.1.

Tiedemann uses these measurement results to plan a possible handover. The measurement report is transmitted from the UE (terminal) to the network (base station). The format and trigger for sending the measurement report again depends on the system and the state of the UE. The Information included in the reports also depends on the system and the state of UE. In GSM

it is e.g. Rxlevel and whether synchronization has been achieved on the neighbouring cell. Again, definitions are noted in ETSI specifications 45.008, section 8.4; 45.008, section 10.1.4.1; and 25.331, section 8.4.2.

A handover command is used in GSM in dedicated mode. The UE has to obey the handover command and switch to the cell indicated in the handover message. This can be regarded comparable to the 3G hard handover command. 3G soft handover does not exist in 2G. In a Hard Handover (HHO) the network commands the UE to a specific configuration (normally new cell) which then the UE must switch to, whether or not any synchronization information is available.

The combination of APA and Tiedemann does not disclose or suggest sending a "cell change failure message" to the base station instead of attempting a cell change.

Col. 10, lines 5-37 of Tiedemann referred to by the Examiner relates to "hard hand off" operations. (Col. 10, lines 6-8). The mobile station M3 generates an extended list of base stations in S2 which the mobile station M3 may be able to acquire. (Col. 10, lines 8-12).

The mobile station M3 tunes to the frequency of the system S2 and measures the energy of the pilot on each channel of the base stations in the extended list. (Col. 10, lines 19-22).

The mobile station M3 transmits a message to the base station indication that acquisition upon base station B5 was possible (Col. 10, lines 23-26.)

In response to this message, the base station generates the Active list set that includes only base station B5. (Col. 10, lines 26-28). This is equal to a switch of base station with the hard handover.

The original system informs the destination system S2 to set up a forward (down link) for the mobile station M3. (Col. 10, lines 29-32).

The forward link is set up and the Active Set list is sent to mobile station M3. (Col. 10, lines 33-36).

In response, the mobile station M3 attempts acquisition of base station B5. (Col. 10, lines 36-37). In essence this means that the hard handover is attempted. It is key to note here that the mobile station "attempts" acquisition, which is unlike Applicant's claimed invention

The Examiner states that the "report" by the mobile station to the base station regarding whether or not it is possible for the mobile station to connect to a candidates base station in Tiedemann as equivalent to a "cell change failure message" in Applicant's invention. This is not accurate, at least because the report has nothing to do with timing or synchronization.

In Tiedemann the "message" indicates that "acquisition upon base station B5 was possible". (Col. 10, lines 23-26). The mobile station M3 then "attempts" acquisition of base station B5. (Col. 10, lines 36-37). In Applicant's invention as recited in claim 1, "instead" of attempting a cell change, the terminal sends the base station the cell change failure message.

In Applicant's invention, as recited in claim 1, although the network sends the terminal a cell change order, the terminal does not need to obey this cell change order, if the timing information of the new cell is not known to the terminal. In Tiedemann, in response to the Active set message, the mobile station M3 "attempts" acquisition. In Applicant's invention, if the timing information is not known, the terminal sends the cell change failure message. The terminal does not attempt a cell change. Thus, it is respectfully submitted that it cannot be said that Tiedemann teaches substituting "attempting a cell change" with a "cell change failure message." These are two different and distinct concepts and one cannot derive one from the other. In Tiedemann, there is an attempted cell change. There is no such attempt recited in the claims of Applicant's invention. Thus, claim 1 is not disclosed or suggested by the combination of APA and Tiedemann.

Claim 4 recites that the packet cell change order includes an information element that gives the terminal the right not to perform the cell change if the terminal does not know the timing of the new cell assigned to it. There is no such disclosure in the combination of APA and Tiedemann. Rather, in response to the Active Set message, mobile station M3 "attempts" acquisition. There is no disclosure or suggestion in Tiedemann that the mobile station M3 can refuse to perform or has the right not to perform, the cell change. Tiedemann makes the attempt. Therefore, claim 4 is not disclosed or suggested by APA and Tiedemann.

Claim 7 recites that the message send by the terminal to the base station is a packet cell change failure message. The

combination of APA and Tiedemann does not disclose or suggest this feature. In Tiedemann, the mobile station attempts acquisition of base station B5. There is no disclosure of a message that indicates non-execution of the cell change as claimed by Applicant.

Claim 19 recites a terminal in a cellular radio system that includes means for sending a cell change failure message to the base station instead of trying a cell change. There is no such disclosure in the combination of APA and Tiedemann.

Claim 22 recites a cellular radio system with cells and terminal where the terminals determine timing information of base stations and convey a cell change failure message if the timing information of a base station if a new cell assigned is not known. There is no such disclosure in Tiedemann for reasons similar to those recited with respect to claim 1.

Claim 25 recites that the cell change failure message includes a cause of the cell change failure. Tiedemann does not disclose or suggest a cell change failure message. Tiedemann "attempts" the acquisition. Tiedemann does not disclose or suggest transmitting a cause of a cell change failure. Therefore, the combination APA, Tiedemann and Anderson does not disclose or suggest the features recited in claim 25.

Claim 26 is patentable over APA in view of Tiedemann since Tiedemann does not disclose or suggest a cell change failure message.

Claim 27 is patentable over APA in view of Tiedemann since Tiedemann does not disclose or suggest a cell change failure message.

Claim 28 is patentable over APA in view of Tiedemann since Tiedemann does not disclose or suggest a cell change failure message or that the message would include a set of neighbour cells.

Claim 29 recites a terminal in a cellular radio system. It further includes a transmission block to send the cell change failure message. This is not disclosed or suggested by the combination of APA and Tiedemann for the reasons stated earlier.

Claim 30 is not disclosed or suggested by APA and Tiedemann because Tiedemann does not disclose or suggest a cell change failure message or that such a message would include information on one or more neighbouring cells.

Claim 31 recites a method for controlling a cell change. The terminal sends a packet cell change failure message that includes information on neighbouring cells for which the terminal already has timing information. There is no such disclosure in APA and Tiedemann. Tiedemann makes no disclosure related to a packet cell change failure message or including the information as claimed by Applicant.

A check in the amount of $500 is enclosed herewith for the appeal brief fee. The Commissioner is hereby authorized to charge payment for any additional fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,

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VIII. CLAIM APPENDIX

The texts of the claims involved in the appeal are:

1. A method for controlling a cell change in a service network, comprising

- a terminal performs neighbour cell measurements for a cell change,

- the network makes a cell change decision based on said measurement results, network load and the terminal's service need, and

- the network sends to the terminal a cell change order instructing the terminal to switch over to a new cell ,

- characterized in that if the new serving cell assigned to the terminal in the cell change order is a cell, the timing information of which is unknown to the terminal, after neighbour cell measurements, the cell change will not take place, but the terminal will send to the base station a cell change failure message instead of attempting a cell change.

2. The method according to claim 1, characterized in that the service network is a GPRS network.

3. (Cancelled)

4. The method according to claim 2, characterized in that to the cell change order PACKET_CELL_CHANGE_ORDER (43) an information element has been added which gives the terminal a right not to perform the cell change if the terminal does not know the timing information of the new cell assigned to it.

5. A method for controlling a cell change in a service network, comprising

a terminal performs neighbour cell measurements for a cell change,

the network makes a cell change decision based on said measurement results, network load and the terminal's service need, and

the network sends to the terminal a cell change order instructing the terminal to switch over to a new cell , the cell change order includes an information element which gives the terminal a right not to perform the cell change if the terminal does not know the timing information of the new cell assigned to it,

wherein, if the new serving cell assigned to the terminal in the cell change order is a cell, the timing information of which is unknown to the terminal, after neighbour cell measurements, the cell change will not take place, but the terminal will send to the base station a cell change failure message instead of attempting a cell change, and

wherein, the service network is a GPRS network and the information enabling the cancellation of the execution of the cell change order is transmitted in a signalling message to the terminal at least partly in the form of the following information elements:

<Packet Cell Change Order message content> ::=

<PAGE_MODE : bit(2)

{

{0<Global TFI :Global TFI IE>>

| 10<TLLI:bit (32)>}

{0-Message escape

{ IMMEDIATE_REL :bit>

<ARFCN: bit (10)

<BSIC: bit (6)

<NC Measurement Parameters :<NC measurement Parameters struct>>

Packet_cell_change_order_options: bit (3)> <padding bits>

|<Non-distribution part error: bit(*) = <no string>>)

|<message escape: 1 bit(*) = <no string>>)

|Address information part error: bit(*) = <no string>>)

|<Distribution part error: bit(*) = <no string>>;

6. The method according to claim 5, characterized in that the bit combination "0-0-0" of the "Packet_cell_change_order_options" information element in said signalling message means that the terminal shall carry out the cell change order, and bit combinations "0–0–1", "0–1–0", "0–1–1", "1–0–0" and "1–1–1" allow the terminal not to carry out the cell change order if the terminal does not know the timing information of the new cell.

7. The method according to claim 2, characterized in that the message (47) sent by the terminal to the base station, indicating the non-execution of the cell change, is a "Packet_cell_change_failure" message.

8. A method for controlling a cell change in a service network, comprising

a terminal performs neighbour cell measurements for a cell change,

the network makes a cell change decision based on said measurement results, network load and the terminal's service need, and

the network sends to the terminal a cell change order instructing the terminal to switch over to a new cell,

wherein, if the new serving cell assigned to the terminal in the cell change order is a cell, the timing information of

which is unknown to the terminal, after neighbour cell measurements, the cell change will not take place, but the terminal will send to the base station a cell change failure message instead of attempting a cell change, the message being a "Packet_cell_change_failure" message, and

wherein, the service network is a GPRS network and the information sent by the terminal to the base station is transmitted to the base station in the network in a signalling message at least partly in the form of the following information elements:

<Packet Cell Change Failure message content> ::=

<TLLI:bit (32)>}

<ARFCN: bit (10)

<BSIC: bit (6)

<Neighbour_cell_reporting: <neighbour cell reporting struct>

<spare padding>

9. The method according to claim 8, characterized in that the "Neighbour_cell_reporting" information element in said signalling message comprises information about the number of neighbour cells the timing data of which are included in the measurement report as well as the neighbour cell measurement data in question.

10. The method according to claim 9, characterized in that the measurement report comprises information only about those neighbour cells the timing information of which has been learned from the neighbour cell measurements performed by the terminal.

11. The method according to claim 10, characterized in that in the measurement report sent by the terminal the neighbour cell measurement data include at least the ARFCN information representing the centre frequencies of the neighbour cells' BCCH channels.

12. The method according to claim 11, characterized in that the ARFCN information is replaced by an indexing system known in the cellular system.

13. The method according to claim 11, characterized in that the neighbour cell measurement data further include the neighbour cell identity information (BSIC).

14. The method according to claim 13, characterized in that the terminal arranges the neighbour cell measurement data in the measurement report in the order according to the reception level (RXLEV) measured by it for each neighbour cell.

15. The method according to claim 14, characterized in that the neighbour cell measurement data included in the measurement

report further comprise the reception levels (RXLEV) in question.

16. (Cancelled)

17. (Cancelled)

18. (Cancelled)

19. A terminal in a cellular radio system, equipped with means for connecting to a certain service (GSM, GPRS) and comprising means for receiving signalling messages from base stations and means for performing cell specific measurements in order to find a suitable serving cell, characterized in that it is further equipped with means for determining the timing information of neighbour cells and means for sending a cell change failure message to the base station of the current cell instead of trying a cell change, in the case that the timing information of the base station of the new cell assigned to the terminal in a cell change order by the serving base station is unknown to the terminal.

20. The terminal according to claim 19, characterized in that said certain service is the GPRS data packet transmission service.

21. The terminal according to claim 19, characterized in that said signalling messages are signalling messages of the GPRS data packet transmission service.

22. A cellular radio system comprising base stations and associated

- cells and terminals , in which system

- the base stations are equipped with means for conveying signalling messages between a base station and a terminal, and

- the terminals are adapted so as to operate at a certain service level (GSM, GPRS) and to convey signalling messages between a terminal and a base station, characterized in that it further comprises information, which is known to a terminal, about a set of neighbour cells of said terminal, the timing information of the base stations of which neighbour cells the terminal has determined, whereby said system is adapted so as to convey, after a cell change order addressed to the terminal, a cell change failure message from the terminal to the base station if the timing information of a base station of a new cell assigned to the terminal in the cell change order by the serving base station is unknown to the terminal instead of trying a cell change.

23. The cellular radio system according to claim 22, characterized in that said certain service is the GPRS data packet transmission service.

24. The cellular radio system according to claim 22, characterized in that said signalling messages are signalling messages of the GPRS data packet transmission service.

25. The method according to claim 1 where a cell change failure message includes a cause of the cell change failure.

26. The method according to claim 1 where a cell change failure message includes neighbour cell information.

27. The terminal according to claim 19, characterized that it is further equipped with means for sending neighbour information together with the cell change failure message.

28. The cellular radio system according to claim 22, characterized in that said cell change failure message includes for the purpose of selecting a new serving cell a set of neighbour cells determined by the terminal.

29. A terminal in a cellular radio system, equipped with transmitter for a connecting to a certain service (GSM, GPRS) and comprising a receiver for receiving signaling messages from

base stations and a reception block for performing cell specific measurements in order to find a suitable serving cell, characterized in that it is further equipped with a control unit for determining the timing information of neighbour cells and a transmission block for sending a cell change failure message to the base station of the current cell instead of trying a cell change, in the case that the timing information of the base station of the new cell assigned to the terminal in a cell change order by the serving base station is unknown to the terminal.

30. The method of claim 1 further comprising that the cell change failure message sent by the terminal includes information on one or more neighbouring cells for which the terminal already has timing information.

31. A method for controlling a cell change comprising:

a terminal receiving a cell change order from the network;

the terminal determining whether timing information related to a new cell identified in the cell change order is available in the terminal; and

if the timing information for the new cell is available, the terminal makes a cell change attempt; and

if the timing information for the new cell is not available, the terminal sends a packet cell change failure message to

the network that includes information on neighbouring cells for which the terminal already has timing information, wherein the network send another new cell change order based on the information included in the packet cell change failure message.

32. The method of claim 31 further comprising the terminal:

receiving the another new cell change order;

determining if timing information is available in the terminal for a cell identified in the another new cell change order;

if information is available, attempting a cell change; and

testing the cell change attempt.

IX. EVIDENCE APPENDIX

N/A

X. RELATED PROCEEDINGS APPENDIX

N/A